Foam Optics And Mechanics (FOAM)

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ESA PIs: Langevin, Saint-Jalmes, Adler (France); Vanderwalle (Belgium); Waiere (Ireland); Odenbach, Banhardtn (Germany); Kronberg (Sweden)
Hardware Development/Engineering: ESA , major contractor ASTRIUM

Glenn Research Center

Science Objectives:

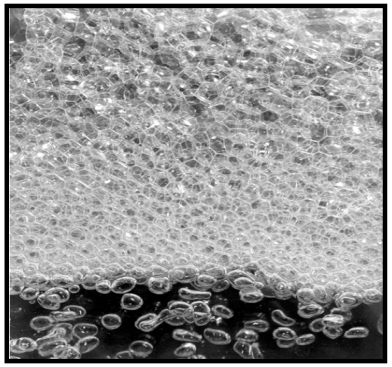
- To exploit microgravity conditions to quantify and elucidate the unusual elastic character of foam structure and dynamics.
- To observe how the foam melts into a simple viscous liquid as a function of both increasing liquid content and shear strain rate.

Relevance/Impact:

- The proposed flight research generate valuable fundamental guidance for the development of materials with more desirable rheology and better stability.
- On board Rheometry and light scattering techniques will provide the rheology and coarsening in terms of microscopic structure and dynamics.

Development Approach:

- ESA / ESTEC is funding the flight hardware and provides ground-based support for all European P.Is.
- US PI funded by NASA.
- Joint collaborative project between NASA and ESA.



Wet Foam and Drainage

ESA Fluids Science Lab

ISS Resource Requirements

Accommodation Carrier	FSL Fluids Science Laboratory Progress
Upmass (kg) (w/o packing factor)	50
Volume (m^3) (w/o packing factor)	
Power (kw) (peak)	
Crew Time (hrs) (installation/operations)	35

Project Life Cycle Schedule

Milestones	PRR	SRR	PDR	CDR	TRR	FAR	FRR	Launch	Ops	Return	Final Report
Actual/ Baseline			July 2007	March 2008				2009	2009	2009	2010

Revision Date: 09/14/07